

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Dispenser for an Aerosol Device

I, ALAN SIDNEY LEWIS OWENSMITH, a British Subject, of 46, Markham Square, London, S.W.3, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a dispenser adapted to hold an aerosol device and facilitate operation to discharge it as and when required in small quantities. By the term 'aerosol device' when used herein I mean a device comprising a container, usually of cylindrical form, sealed save for a spring-loaded valve which when depressed against the force of a spring opens a discharge orifice or orifices to the interior of the container to allow the contents of the container to be discharged under internal pressure e.g., as a forcible spray or jet.

There is need for a cheap and simple dispenser whereby the aerosol can be supported at a convenient location preferably remote from heat and actuated for discharge whilst in situ with simple mechanical aid, e.g., can be supported on a wall out of reach of children at a position such that a person of average height when standing can conveniently manipulate the dispenser to cause the aerosol to discharge over a wider than normal area if only momentarily without tending by repeated application of pressure to the valve to cause the dispenser to work loose from the wall.

The dispenser according to the present invention is adapted to hold an aerosol device as previously defined and comprises an abutment or reaction member which will positionally co-operate with the valve of such a device when the latter is positioned in the dispenser and means operable axially to dis-

place such device so that the valve will be opened against its spring by the abutment or reaction member to cause discharge from the device.

The dispenser is preferably constructed to support and locate the aerosol device in a vertical position, the abutment or reaction member being a top member positioned to overlie the valve, the dispenser including a platform on which the device can be placed and the said means being operable to raise the platform and thereby effect said displacement of the device.

The said means may comprise a lever fulcrummed to the casing of the dispenser and having its operating end positioned to lie substantially centrally under the device when the latter is positioned in the dispenser. By such a means the aerosol device can be displaced by a light pressure with considerable mechanical advantage.

According to another embodiment, a cam lift means may be provided instead of the lever; such a means can also be operated by the user with considerable mechanical advantage.

The aerosol device may be positioned in the dispenser so that in the 'at rest' position the top of the valve is in light contact with or slightly spaced from the underside of the projecting abutment or reaction member.

The aerosol device may be rotated manually when in the dispenser so that the spray or jet may be directed in any convenient direction. The device will not rotate however from the set position when operated by means of the lever or the cam-shaft operating lever or knob.

The dispenser may be in two or more standard sizes e.g., domestic and commercial models—to contain aerosol devices of any appropriate type and may be fitted with simple

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locking means—e.g., a crossbar and padlock—for use in public places where but for this modification the aerosol might be stolen.

5 The dispenser may, if necessary, be operated in the inverted position in which case a return spring may be fitted to assist the valve spring.

For bathroom, lavatory and like uses, the user may discharge the aerosol device when required by holding it in the displaced position for the desired length of time.

10 In order that the invention may be described, reference will first be made to the embodiment illustrated in the drawing, Fig. 1, which accompanied the provisional specification of application No. 41425/60.

15 The casing 1 of the illustrated dispenser may be pressed, moulded or otherwise formed. It may be of metal, plastic or other suitable material. It is constructed to support an aerosol device 2 and has an open front through which the aerosol device may be entered or withdrawn. A platform 3 is loose-coupled to a lever 4 which is fulcrummed at 5 in a bearing on the base 6 of the casing. In the illustrated form the loose coupling is achieved by a shaped end portion 7 of the lever engaging freely in a slot 8 in the platform, but any other suitable loose-coupling means may be provided, e.g., under the platform, without necessarily interrupting the upper face of the platform. The lever has a down-turned operating end 9 which may be suitably shaped for applying thumb pressure as conveniently as possible. To facilitate the actuation of the lever without unduly tending to loosen the fixation of the dispenser, the base of the casing has a depending reaction element 10 behind which one finger of the operator's hand can press forwardly whilst the thumb is applying operating pressure to the lever in the reverse direction. The lever may be independently spring-loaded if desired or necessary.

45 The upper part 11 of the casing is shaped to form the aforesaid abutment or reaction member.

50 The aerosol device is inserted into the dispenser from the front so that the aperture or nozzle of the operating valve head 12 will be pointing forwardly when it is in position. The direction of emission may be adjusted after the aerosol device is in position by rotating the aerosol device within the dispenser.

55 The valve head may just clear the abutment or reaction member 11 so that the aerosol device may be inserted into the dispenser without difficulty and without discharging. Alternatively the abutment or reaction member may incorporate screw or other means adapted to be moved, e.g., screwed, into contact with the valve head 12 after the aerosol device has been positioned in the dispenser.

Under the action of the spring in the head of the aerosol device, the aerosol device will seat itself firmly on the platform during operation.

70 The operating end of the lever and the reaction element 10 are positioned so that the lever can be readily operated by a pinch action, resulting in the platform being lifted by the lever by a force applied under or nearly at the centre of the aerosol device, the aerosol device (save for the valve head) and the platform rising as a unit with the platform firmly seating the aerosol device.

75 The rear wall of the casing may have one or more vertically disposed key-hole slots 13 to enable it to be easily positioned and held on two screws or headed studs projecting from the wall or other surface to which the dispenser is secured.

80 The casing may be otherwise secured to a wall, e.g., adhesively.

85 The continuity of the upper face of the platform need not be interrupted, e.g., an end of the lever shaped as desired may merely press on the underside of the platform, in which case the platform may be retained by any suitable means on the casing, or the end of the lever and the underside of the platform may co-operate to retain the platform against inadvertent lateral displacement.

90 If provided with key-hole slots and locating pins or screws and thereby readily removable from the wall, the rear of the dispenser body or case may be open and the front partially closed so that the aerosol device may be loaded into or removed from the dispenser from the rear.

95 Other embodiments of the invention are illustrated in the drawings which accompanied the provisional specification of application No. 6398/60 in which Fig. 2 is a side sectional elevation of one of the said embodiments, Fig. 3 is a front view thereof, Fig. 4 is a plan view thereof. Fig. 5 is a fragmentary view of a modified construction, Fig. 6 is a fragmentary view of a further modification. Fig. 7 is a perspective view of a hinge-fronted dispenser and Fig. 8 a front elevation showing the said front open.

100 The body or case 1 of the dispenser (with reference to Fig. 2 to 4) which may be made of plastic and/or any other suitable material, as may the other parts, is of box form with an open front 2, side walls cut away at 3 and a short top wall or 'roof' of generally triangular plan 4 forming the aforesaid abutment or reaction member.

105 The side walls are slightly narrowed by projections adjacent to the upper portion of the wall or the aerosol device and a similar projection is provided upon the rear wall to provide a close fit for the aerosol.

110 The base 5 of the case is provided with a semi-circular bearing groove 5a in its upper portion 6 upon the upper surface of which

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rests platform 7. The base of the aerosol device 8 seats on this platform and the rear lower rim of the aerosol device is retained against sliding forward movement by the rear surface of the inclined ramp or protrusion 7a on the top face of the platform.

The ramp or protrusion 7a may have a low steep rear wall and is so positioned that when the aerosol device is slid into the dispenser the rear of the bottom rim of the said device rides up the inclined plane of the protrusion and then drops down behind the said rear wall so that the aerosol device is prevented from moving laterally by having its rear base rim held behind the aforementioned rear wall of the protrusion.

The cam in this case is formed by the plane top 9 of a shaft 10 whose section is generally semi-circular and which seats in bearing groove 5a. The rear end of the shaft has a journal 11 which engages in a bearing hole 12 in the lower centre of the back of the case, there being play at the top of the bearing hole to permit the shaft to be lifted from the operating end.

The platform has four depending pins 13 which are received in sockets 14 in the upper portion of the base of the box.

The cam-shaft has an actuating knob or arm 15 and a flat-topped collar 16 in the lower portion of which engages in an arcuate groove 17 in the top of the projecting front part 17a of the base.

The flat-topped collar 16 is level with the top of the platform when the dispenser is in the 'at rest' position.

The dispenser may be fitted to the wall at a convenient height, e.g., above head level but within easy reach of the average user.

The aerosol device is inserted into the dispenser from the front so that the aperture or nozzle 18 of the operating valve head 19 will be pointing forwardly when it is in position. The direction of emission may be adjusted after the aerosol is in position by rotating the aerosol device bodily within the dispenser.

The valve head 19 just clear the abutment or reaction member 4 so that the aerosol may be inserted into the dispenser without difficulty and without discharging.

The aerosol device is slid into the dispenser from the front and during the later stages of its travel rearwards, its rear lower rim rides up the inclined plane of the semi-circular aerosol-retaining ramp 7a at the rear of the platform and drops down behind it thus being prevented from sliding forward.

The platform itself is prevented from sliding forward by virtue of the retaining pins fitting into sockets in the base of the dispenser and these indirectly hold the aerosol device from moving forwardly also.

The cam-shaft 10 is inserted into its bearing groove 5a under platform 7 until the

journal 11 engages in its bearing hole 12 and the collar 16 seats in the arcuate groove 17. The shaft is then retained against inadvertent withdrawal by the action of the valve spring of the aerosol device and thence to the platform and thence to the cam-shaft.

The cam-shaft may be inserted into or removed from the dispenser when the aerosol device is in position. During insertion and withdrawal of the shaft the front of the platform will be slightly lifted but not so that the aerosol device will be discharged. In the normal way the cam-shaft and platform would only be removed for cleaning purposes.

The rear journal may have sufficient play to permit lifting of the forward end of the cam shaft into a position in which its collar clears the groove and the shaft can be pulled forwardly at an angle out of the body or case when the aerosol device and the platform are in position.

The aerosol device may be removed when the platform and the shaft are in position by pulling its upper portion forward and thereby clearing the rear base rim of the aerosol device from the rear face of the retaining protrusion or ramp on the platform.

With the dispenser suitably located on a wall at a convenient height (e.g., screwed through holes 20) a partial turn of the operating knob or arm 15 will rotate the cam shaft in either direction and raise the platform and also the aerosol device. This action causes the abutment or reaction member 4 to operate the valve and the desired period of discharge results. When the actuating finger pressure is released, the action of the valve-spring assisted by gravity returns the aerosol device, the platform and the cam-shaft to the 'at rest' position.

The aerosol device is removed by gripping or pulling on the neck of the aerosol with the fingers and pulling it forward so that the aerosol device emerges in a tilted and then a near horizontal position.

The thickness of the platform may be varied to allow for variations in the construction of aerosols. Alternatively or additionally an adjustable member such as an adjustment screw device may be fitted integrally with the frontal portion of the top abutment or reaction member to permit the adjustment of the spacing between said abutment and the valve head.

In addition to or in lieu of the retaining ramp as aforesaid, the aerosol device may be gripped and retained steady on the platform by a spring clip device in the body or case of the dispenser or by protrusions integral with the sides of the body of the case.

The upper cam surface need not be continuous but may be in sections and as in the form shown, the shaft can be arranged on a diameter under the aerosol and apply lifting forces near to the said diameter. The

finger knob, lever, arm or the like may be proportioned to give a favourable mechanical advantage to the user.

In the modification illustrated in Fig. 5 the aforesaid collar on the cam shaft is dispensed with. The platform 7b is located by an upstanding front wall 21 of the base of the box or case, which wall also serves as an end bearing for the cam portion of the shaft 10, which may have a medial cylindrical centre portion 10a that can drop in a recess 10b in the said wall.

In the modification shown in Fig. 6 the platform 7c has an upstanding front flange 22 and the collar 16a acts as a stop for the platform, the platform flange acting as a stop to retain the aerosol device. Platform locating pins and the aerosol device retaining protrusion are dispensed with in this form of construction but it is necessary in this dispenser to remove the cam shaft prior to inserting a new aerosol device.

By dispensing with the flange it is possible to retain both the platform and the aerosol device by means of a collar alone. The dispenser may be designed for loading and/or operating from the side instead of the front.

The platform (Figs. 2 to 4) need not be fitted with co-operating pins and sockets or other locating means but may be normally prevented from forward movement by the collar on the cam-shaft co-operating with its front portion as a stop.

Figs. 7 and 8 illustrate another form of dispenser in which the aerosol device is contained in a hinged front 23 of the dispenser, which front and the appropriate side of the rear fixed portion 24 of the body or case of the dispenser are provided with co-operating fastening or locking elements generally indicated at 25. Platform locating and aerosol device retaining elements can be dispensed with in this arrangement and if desired the hinged front can be locked in the closed position to prevent unauthorised access to the aerosol device. The hinges may be of any suitable kind, e.g., pin or pintle hinges.

The finger knob or lever of the cam-shaft as hereinbefore described may be replaced by an arm arranged for operation by a clock-work or electrical mechanism arranged in or under the base of the dispenser, e.g., adapted to trip the arm at pre-determined intervals. If the arm were adjustable or by other means the duration of each period of discharge could be varied. Alternatively, the forward end of the shaft may be constructed through suitable linkage that, with the dispenser appropriately located, the cam shaft could be operated by a door when opened or closed.

By utilising a suitable aerosol device e.g., of the kind used with wood-worm killer aerosols (which have a long small bore tube leading from the nozzle to permit concentration of the fluid upon a small area) the dis-

perser could be used to spray or inject disinfectant contained in an aerosol device directly into a toilet bowl by remote control.

Remote means may be provided for operating the cam-shaft e.g., the cam-shaft could have an end arm or lever connected to suspended cord of (Bowden) cable and in this case the dispenser could be situated at a greater height than that reachable by extending the arm or at a distance remote from the user in the horizontal plane. Additionally, the aerosol device may be mounted on the end of a pole and operated remotely by the user to spray trees etc.

WHAT I CLAIM IS:—

1. A dispenser adapted to hold an aerosol device as herein defined and comprising an abutment or reaction member which will positionally co-operate with the valve of such a device when the latter is positioned in the dispenser and means operable axially to displace such device so that the valve will be opened against its spring by the abutment or reaction member to cause discharge from the device.

2. A dispenser according to claim 1 adapted to support and locate the aerosol device in a vertical position, the abutment or reaction member being a top member positioned to overlie the valve, the dispenser including a platform on which the device can be placed and the said means being operable to raise the platform and thereby effect said displacement of the device.

3. A dispenser according to claim 1 or 2, said means comprising a lever fulcrummed to the casing of the dispenser and having its operating end positioned to lie substantially centrally under the device when positioned in the dispenser.

4. A dispenser according to claims 2 and 3, said lever being fulcrummed under the platform and having a depending forward projection to enable the lever to be turned by thumb or finger pressure substantially at right angles to the platform.

5. A dispenser according to claim 4, in which the dispenser casing is provided with a fixed downward projection behind the said depending lever projection against which a finger can be pressed while the thumb is pressing the lever in the opposite direction.

6. A dispenser according to claim 2 and 3, 4 or 5, in which the platform is loosely coupled to the lever so that the platform maintains contact with the bottom rim of the device during displacement of the latter.

7. A dispenser according to claim 1 or 2, said means being a cam or like means.

8. A dispenser according to claim 7 said cam being on or carried by a rotatable shaft positioned so as to lie diametrically under the aerosol device when in position, the shaft having a finger-actuated forwardly projecting end.

9. A dispenser according to claim 2 and 8, in which the cam is positioned under the platform and operates directly to displace the platform bodily.
10. A dispenser according to claim 9 in which the cam is let into a groove or channel in the base of the dispenser and has a plane top flush with the top of said base so that the platform can rest on said base in the inoperative position.
11. A dispenser according to any of the preceding claims, having back side and top and bottom walls and an open front through which the device can be inserted or withdrawn, the abutment or reaction member being formed or carried by the said top wall.
12. A dispenser according to claim 2 or any of the preceding claims appendent thereto in which the platform is guided in movement axially of the device, e.g., by pin and socket means.
13. A dispenser according to claim 2 or any of the preceding claims appendent thereto in which the platform has means to position the device thereon.
14. A dispenser according to any preceding claim hinged to a fixing plate or bracket so that it can be closed.
15. A dispenser according to any of the preceding claims, in which the said means for axially displacing the aerosol device are associated with mechanical or electrical means for automatically displacing the said device at predetermined intervals.
16. A dispenser according to any of the preceding claims constructed and provided with means whereby the device can be displaced by the opening or closing of a door.
17. A dispenser according to any of the preceding claims in which the said operating means are provided with a control whereby said means can be remotely operated.
18. A dispenser substantially as herein described with reference to the drawing which accompanied the provisional specification of application No. 41425/60.
19. A dispenser substantially as herein described with reference to Figs. 2 to 4, or as modified by Fig. 5, or Fig. 6 or Fig. 7 and 8 of the drawings which accompanied the provisional specification of Application No. 6398/60.

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PROVISIONAL SPECIFICATION No. 6398 A.D. 1960

Dispenser for an Aerosol Device

- I, ALAN SIDNEY LEWIS OWENSMITH, a British Subject, of 46, Markham Square, London, S.W.3, do hereby declare this invention to be described in the following statement:—
- The present invention relates to a dispenser adapted to hold an aerosol device and facilitate operation to discharge it as and when required in small quantities. By the term 'aerosol device' when used herein I mean a device comprising a container, usually of cylindrical form, sealed save for a spring-loaded valve which when depressed against the force of a spring opens a discharge orifice or orifices to the interior of the container to allow the contents of the container to be discharged under internal pressure e.g., as a forcible spray or jet.
- There is need for a cheap and simple dispenser whereby the aerosol can be supported at a convenient location preferably remote from heat and actuated for discharge whilst in situ with simple mechanical aid e.g., can be supported on a wall out of reach of children at a position such that a person of average height when standing can conveniently manipulate the dispenser to cause the aerosol to discharge over a wider than normal area if only momentarily without tending by repeated application of pressure to the valve to cause the dispenser to work loose from the wall.
- The dispenser according to this invention comprises a top abutment or reaction member adapted to overlie the valve of an aerosol device when positioned in the dispenser and means operable for lifting the aerosol device vertically or otherwise bodily shifting it so that the valve is depressed against its spring by the abutment or reaction member to cause discharge from the device.
- With the aim of embodying a simple mechanical lifting means that can be operated by the used with considerable mechanical advantage, the dispenser may be provided with rotary cam means for achieving the lifting action.
- The cam in one or more sections may be on or part of a shaft which is arranged diametrically under the bottom of the aerosol device—e.g., from front to back or from side to side—and has an upper cam surface (whether continuous or in two or more sections spaced along the shaft) to lie under the bottom of the container. This cam may apply the lifting action near to the said diameter and the shaft may be provided with a finger knob, lever, arm or the like at the operating end proportioned so that favourable mechanical advantage is given to the user.

The cam is preferably disposed under a platform which supports the aerosol device so that the lift of the platform by the cam will be transmitted to the aerosol device. The lift of the cam action should exceed the movement necessary to depress the valve of the aerosol device. The platform (upon its lower surface) and the base of the dispenser may be provided with co-operating pin and socket locating means which allow of lift and fall action but limit the lateral movement of the platform. The same or other means may serve to guide the platform in vertical movement and against undesirable rocking movement.

The platform may have upon its upper surface a semi-circular protrusion having its top as an inclined plane and a steep low rear wall. This protrusion is so positioned that when an aerosol device is slid into the dispenser the rear of its bottom rim rides up the inclined plane of the protrusion and then drops down behind its said rear wall so that the aerosol is prevented from moving laterally by having its rear base rim held between the aforementioned rear wall of the protrusion and the back wall of the dispenser itself.

The cam shaft may be supported in a groove in the base of the body or case of the dispenser so that the platform may seat on the said base until lifted by the cam and the rear extension of the shaft may be journaled in a bearing hole in the back of the body or case of the dispenser.

The cam shaft and the body or case may have co-operating means—e.g., a collar or protrusion on the shaft and an actuate groove in the base of the dispenser body or case to retain the shaft against inadvertent axial movement—e.g., against accidental withdrawal from the body of the dispenser while the operating knob or lever is being actuated.

The said co-operating means are preferably designed so that by lifting the forward end of the shaft (the rear journal and bearing in such case having sufficient upper play to permit such lifting) the shaft can be brought into a position in which it can be pulled forwardly at an angle out of the body or case when the aerosol device and the platform are in position.

The aerosol device may be removed when the platform and the shaft are in position by pulling its upper portion forward and thereby clearing the rear base rim of the aerosol from the rear face of the aerosol-retaining protrusion of the platform.

A simple form of cam-shaft is one which has a semi-circular base portion and the said groove in which it seats is correspondingly contoured. The upper surface forming the cam may be plane, concave, convex, ribbed etc.

The platform need not be fitted with co-operating pins and sockets or rother locating

means but may normally be prevented from forward movement by the collar on the cam-shaft co-operating with its front portion as a stop.

The body or case of the dispenser may be provided with an open front to permit the easy insertion or withdrawal of the aerosol device and the rear wall may be provided with holes to receive screws or nails or the like for attaching the dispenser to the wall or inverted keyhole slots may be provided so that the device may be dropped into located position onto pins, nails or screws or the like fixed to the wall. Alternatively, the dispenser could be secured to the wall with adhesive.

If provided with key-hole slots and locating pins or screws and thereby readily removable from the wall the rear of the dispenser body or case may be open and the front partially closed so that the aerosol device may be loaded into or removed from the dispenser from the rear.

In one form the dispenser may be so constructed that the front portion containing the aerosol device may be hinged away from a back portion—adapted to be fitted to the wall—to permit the loading or removal of aerosol devices. The front of such a dispenser may be partially closed and a clip or locking means provided to hold the hinged portion to the fixed portion. This fixed portion in this instance carries the top abutment or reaction member and also a forwardly projecting base to support the hinged portion.

The aerosol may be positioned in the dispenser so that in the 'at-rest' position the top of the valve is in light contact with or slightly spaced from the underside of the projecting abutment or reaction member.

The aerosol device may be rotated manually when in the dispenser so that the spray or jet may be directed in any convenient direction. The device will not rotate however from the set position when operated by means of the cam-shaft operating lever or knob.

A part-turn of the cam-shaft operating lever or knob will lift the platform and the aerosol device and cause the latter to be discharged and when pressure upon the operating lever or knob is released the aerosol will cease to discharge and together with the platform and the cam-shaft will be returned to the 'at-rest' position by the pressure of the valve spring and assisted by gravity.

The dispenser may be made in two or more standard sizes e.g., domestic and commercial models—to contain aerosol devices of any appropriate type and may be fitted with simple locking means—e.g., a crossbar and padlock—for use in public places where but for this modification the aerosol might be stolen.

The dispenser may, if necessary, be

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operated in the inverted position in which case a return spring may be fitted to assist the valve spring.

5 For bathroom, lavatory and like uses, the user may discharge the aerosol when required by merely turning the cam-shaft operating knob or lever in either direction for the desired length of time.

10 The dispenser may be designed with side operating and loading means and such a dispenser is suitable for use with fire-extinguisher aerosol devices if fitted with inverted key-hole slots and appropriate pins, screw, nails etc., in the wall. Such a dispenser would also be convenient for use with
15 other aerosol devices as an alternative to the front operating and loading model.

In order that the invention may be the more clearly understood reference is herein-
20 after made to the accompanying drawings in which

Fig. 1 is a side sectional elevation of one embodiment according to the invention.

Fig. 2 is a front view thereof.

25 Fig. 3 is a plan view thereof.

Fig. 4 is a fragmentary view of a modified version.

Fig. 5 is a fragmentary view of a further modification.

30 Fig. 6 is a perspective view of a hinge-fronted dispenser and Fig. 7 a front elevation showing the said front open.

The body or case 1 of the dispenser (with reference to Fig. 1 to 3) which may be made
35 of plastic and/or any other suitable material, as may the other parts, is of box form with an open front 2, side walls cut away at 3 and a short top wall or 'roof' of generally triangular plan 4 forming the aforesaid abutment or reaction member.
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The side walls are slightly narrowed adjacent to the upper portion of the aerosol wall and a similar abutment is provided upon the rear wall to provide a close fit for the aerosol.

45 The base 5 of the box is provided with a semi-circular bearing groove 5a in its upper portion 6 upon which surface rests platform 7. The base of the aerosol device 8 seats on this platform and the rear lower rim of the aerosol is retained against sliding forward movement by the rear surface of the inclined ramp or protrusion 7a on the top face of the platform.
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The cam in this case is formed by the plane top 9 of a shaft 10 whose section is generally semi-circular and which seats in bearing groove 5a. The rear end of the shaft has a journal 11 which engages in a bearing hole 12 in the lower centre of the back of the box, there being play at the top of the bearing hole to permit the shaft to be lifted from the operating end.
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The platform has four depending pins 13 which are received in sockets 14 in the upper
65 portion of the base of the box.

The cam-shaft has an actuating knob or arm 15 and a flat-topped collar 16 the lower portion of which engages in an arcuate groove 17 in the top of the projecting front part 17a of the base.
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The flat-topped collar 16 is level with the top of the platform when the dispenser is in the 'at rest' position.

The dispenser may be fitted to the wall at a convenient height, e.g., above head level but within easy reach of the average user.
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The aerosol is inserted into the dispenser from the front so that the aperture or nozzle 18 of the operating valve head 19 will be pointing forwardly when it is in position.
80 The direction of emission may be adjusted after the aerosol is in position by rotating the aerosol bodily within the dispenser.

The valve head 19 just clears the abutment or reaction member 4 so that the aerosol may be inserted into the dispenser without difficulty and without discharging.
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The aerosol is slid into the dispenser from the front and during the later stages of its travel rearwards, its rear lower rim rides up the inclined plane of the semi-circular aerosol-retaining ramp 7a at the rear of the platform and drops down behind it thus being prevented from sliding forward.
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The platform itself is prevented from sliding forward by virtue of the retaining pins fitting into sockets in the base of the dispenser and these indirectly hold the aerosol device from moving forwardly also.
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The cam-shaft 10 is inserted into its bearing groove 5a under the platform 7 until the journal 11 engages in its bearing hole 12 and the collar 16 seats in the arcuate groove 17. The shaft is then retained against inadvertent withdrawal by the action of the valve spring upon the aerosol and thence to the platform and thence to the cam-shaft.
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The cam-shaft may be inserted into or removed from the dispenser when the aerosol device is in position. During insertion and withdrawal of the shaft the front of the platform will be slightly lifted but not so that the aerosol will be discharged. In the normal way the cam-shaft and platform would only be removed for cleaning purposes.
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With the dispenser suitably located on a wall at a convenient height (e.g., screwed through holes 20) a partial turn of the operating knob or arm 15 will rotate the cam-shaft in either direction and raise the platform and also the aerosol device. This action causes the abutment of reaction member 4 to depress the valve and the desired period of discharge results. When the actuating finger pressure is released, the action of the valve-spring assisted by gravity returns the aerosol device, the platform and the cam-shaft to the 'at rest' position.
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The aerosol device is removed by gripping or pulling on the neck of the aerosol with
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the fingers and pulling it forward so that the aerosol device emerges in a tilted and then a near horizontal position.

5 The thickness of the platform may be varied to allow for variations in the construction of aerosols. Alternatively or additionally an adjustable member such as an adjustment screw device may be fitted integrally with the frontal portion of the top abutment or reaction member to permit the adjustment of the spacing between said abutment and the valve head.

10 In addition to or in lieu of the retaining ramp as aforesaid, the aerosol device may be gripped and retained steady on the platform by a spring clip device in the body or case of the dispenser or by protrusions integral with the sides of the body of the case.

15 In the modification illustrated in Fig. 4 the aforesaid collar on the cam shaft is dispensed with. The platform 7b is located by an upstanding front wall 21 of the base of the box or case, which wall also serves as an end bearing for the cam portion of the shaft 10, which may have a medial cylindrical centre portion 10a that can drop in a recess 10b in the said wall.

20 In the modification shown in Fig. 5 the platform 7c has an upstanding front flange 22 and the collar 16a acts as a stop for the platform the platform flange acting as a stop to retain the aerosol device. Platform locating pins and the aerosol device retaining protrusion are dispensed within this form of construction but it is necessary in this dispenser to remove the cam shaft prior to inserting a new aerosol device.

30 By dispensing with the flange it is possible to retain both the platform and the aerosol device by means of a collar alone.

40 Figs. 6 and 7 illustrate another form of dispenser in which the aerosol device is contained in a hinged front 23 of the dispenser, which front and the appropriate side of the rear fixed portion 24 of the body or case of the dispenser are provided with co-operating

fastening or locking elements generally indicated at 25. Platform and aerosol device retaining elements can be dispensed with in this arrangement and if desired the hinged front can be locked in the closed position to prevent unauthorised access to the aerosol device. The hinges may be of any suitable kind, e.g., pin or pintle hinges.

50 The finger knob or lever of the cam-shaft as hereinbefore described may be replaced by an arm and this arranged for operation by a clockwork or electrical mechanism arranged in or under the base of the dispenser e.g., adapted to trip the arm at pre-determined intervals. If the arm was adjustable or by other means the duration of the each period of discharge could be varied. Alternatively, the forward end of the shaft may be constructed through suitable linkage that, with the dispenser appropriately located, the cam shaft could be operated by a door when opened or closed.

55 By utilising a suitable aerosol device e.g., of the kind used with wood-worm killer aerosols (which have a long small bore tube leading from the nozzle to permit concentration of the fluid upon a small area) the dispenser could be used to spray or inject disinfectant contained in an aerosol device directly into a toilet bowl by remote control.

60 Remote means may be provided for operating the cam-shaft e.g., the cam-shaft could have an end arm or lever connected to a suspended cord or (Bowden) cable and in this case the dispenser could be situated at a greater height than that reachable by extending the arm or at a distance remote from the user in the horizontal plane. Additionally, the aerosol device may be mounted on the end of a pole and operated remotely by the user to spray trees etc.

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PROVISIONAL SPECIFICATION

No. 41425 A.D. 1960

Dispenser for an Aerosol Device

90 I, ALAN SIDNEY LEWIS OWENSMITH, a British Subject, of 46, Markham Square, London, S.W.3, do hereby declare this invention to be described in the following statement:—

95 The present invention relates to a dispenser adapted to hold an aerosol device and to facilitate operation to discharge it as and when required in small quantities. By the term "aerosol" when used herein I mean a device comprising a container, usually of cylindrical form, sealed save for a spring-loaded valve which when depressed against

the force of a spring opens a discharge orifice or orifices to the interior of the container to allow the contents of the container to be discharged under internal pressure, e.g., as a forcible spray or jet.

105 There is a need for a cheap and simple dispenser whereby the aerosol can be supported at a convenient location, preferably remote from heat, and actuated for discharge whilst in situ with simple mechanical aid, e.g., can be supported on a wall out of reach of children at a position such that a person of average height, when standing, can con-

veniently cause the aerosol to discharge, if only momentarily on each occasion, without tending by repeated application of pressure to the valve to cause the dispenser to work loose from the wall.

The dispenser according to this invention comprises a top abutment or reaction member adapted to overlie the valve of an aerosol when positioned in the dispenser and lever means operable for lifting the aerosol so that the valve is depressed against its spring by the abutment or reaction member to cause discharge from the device.

The present invention provides a simple lever operated means for lifting the aerosol device. The lever is preferably constructed and arranged to apply the lift action directly under the said abutment, i.e., centrally of the base of the aerosol or substantially so, and preferably to a separate platform which is free to give full support throughout to the base of the aerosol or the periphery thereof. The platform may be loose-coupled to the lever for this purpose. In order to counter the tendency of repeated operating "jabs" to be applied to the lever and loosen the fixation of the dispenser to the wall or other surface, it is preferred to provide the dispenser casing with a reaction member behind which one finger can press whilst the thumb applies the operating pressure in the opposite direction. The platform may be loose coupled to the lever by providing the lever with an end projection passing freely through a hole or slot in the platform or the loose-coupling may be on the underside of the platform so as not to interrupt the continuity of the upper face of the platform, e.g., an end of the lever shaped as desired may merely press on the underside of the platform, in which case the platform may be retained by any suitable means on the casing, or the end of the lever and the underside of the platform may cooperate to retain the platform against inadvertent lateral displacement.

In order that the invention may be the more readily understood, one embodiment thereof is illustrated in the accompanying sectional drawing (marked Fig. 1).

The casing 1 of the illustrated dispenser may be pressed, moulded or otherwise formed. It may be of metal, plastic or other suitable material. It is constructed to support an aerosol 2 and has an open front through which the aerosol may be entered or withdrawn. A platform 3 is loose-coupled to a lever 4 which is fulcrumed at 5 in a bearing on the base 6 of the casing. In the illustrated form the loose coupling is achieved

by a shaped end portion 7 of the lever engaging freely in a slot 8 in the platform, but any other suitable loose-coupling means may be provided, e.g., under the platform, without necessarily interrupting the upper face of the platform. The lever has a down-turned operating end 9 which may be suitably shaped for applying thumb pressure as conveniently as possible. To facilitate the actuation of the lever without unduly tending to loosen the fixation of the dispenser, the base of the casing has a depending reaction member 10 behind which one finger of the operator's hand can press forwardly whilst the thumb is applying operating pressure to the lever in the reverse direction. The lever may be independently spring-loaded if desired or necessary.

The upper part 11 of the casing is shaped to form the aforesaid abutment or reaction member.

The aerosol is inserted into the dispenser from the front so that the aperture or nozzle of the operating valve head 12 will be pointing forwardly when it is in position. The direction of emission may be adjusted after the aerosol is in position by rotating the aerosol within the dispenser.

The valve head may just clear the abutment or reaction member 11 so that the aerosol may be inserted into the dispenser without difficulty and without discharging. Alternatively the abutment or reaction member may incorporate screw or other means adapted to be moved, e.g., screwed, into contact with the valve head 12 after the aerosol has been positioned in the dispenser.

Under the action of the spring in the aerosol head, the aerosol will seat itself firmly on the platform.

The operating end of the lever and the reaction member are positioned so that the lever can be readily operated by a pinch action, resulting in the platform being lifted by the lever by a force applied under or nearly under the centre of the aerosol, the aerosol and the platform rising as a unit with the platform firmly seating the aerosol.

The rear wall of the casing may have one or more vertically disposed key-hole slots 13 to enable it to be easily positioned and held on two screws or headed studs projecting from the wall or other surface to which the dispenser is secured.

HYDE & HEIDE,

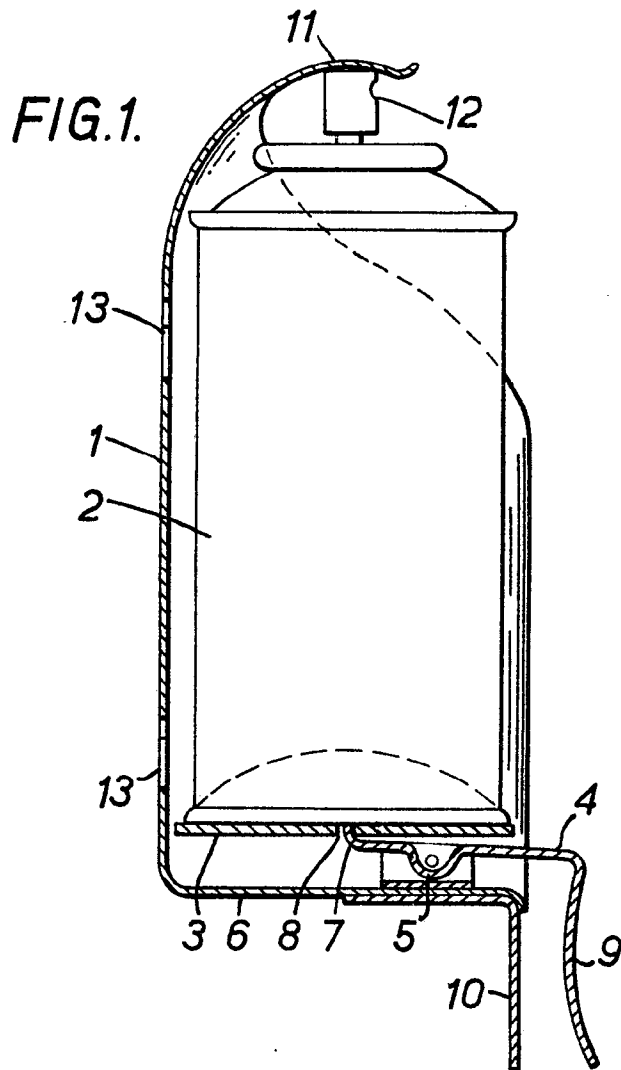
4, Broad Street Buildings,
Liverpool Street, London, E.C.2.
Patent Agents for the Applicant,
Chartered Patent Agents.

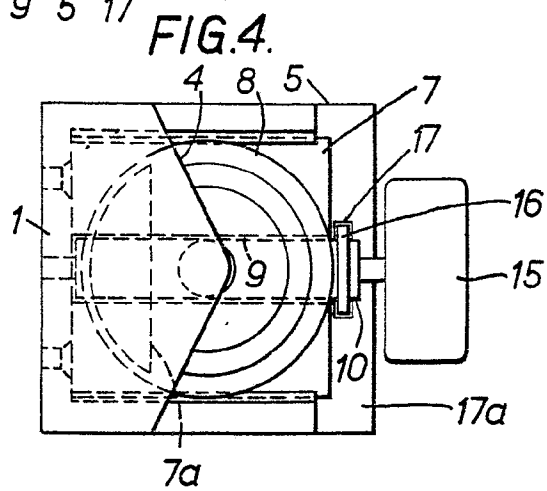
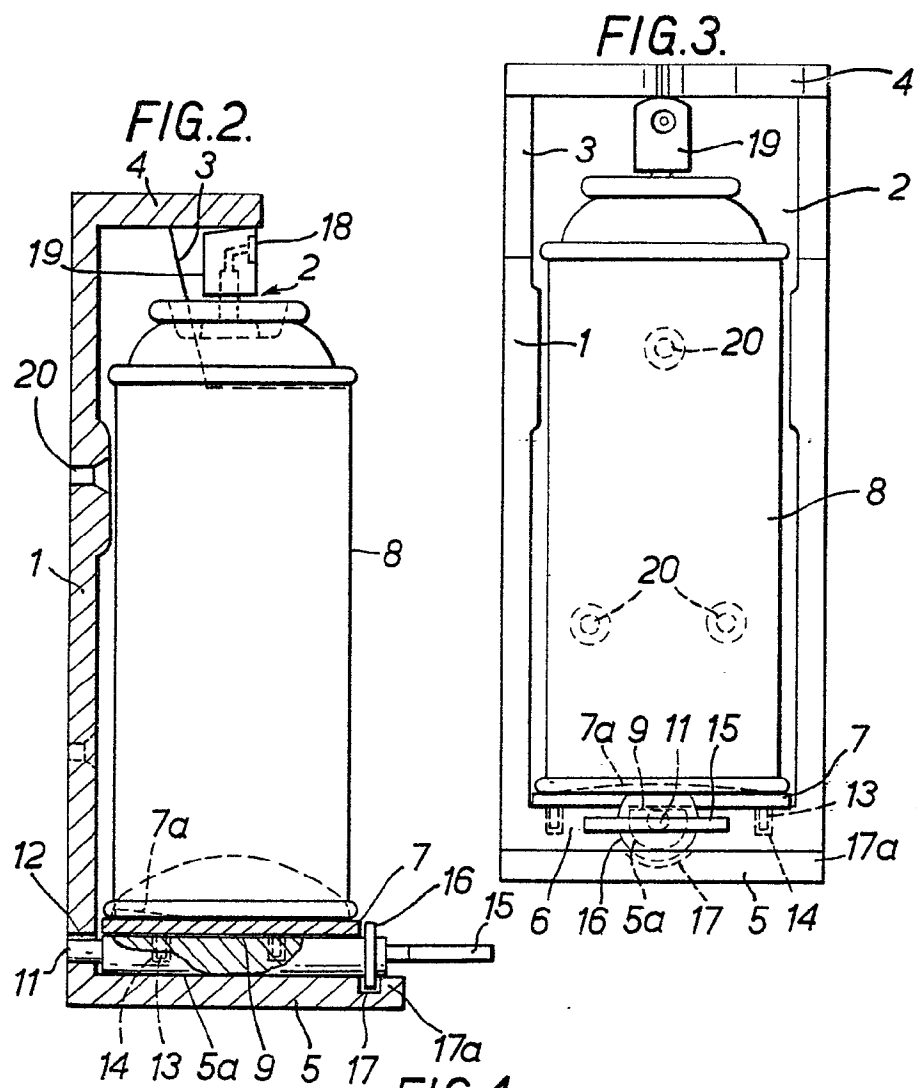
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PROVISIONAL SPECIFICATION No.4142560

1 SHEET

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2 SHEETS

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SHEETS 1 & 2

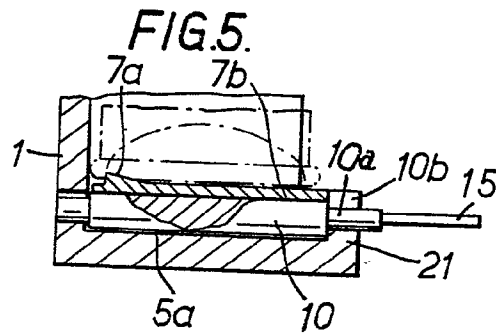
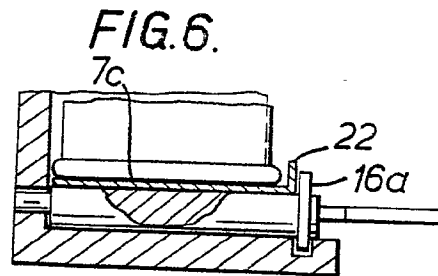
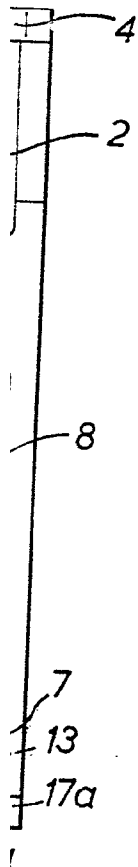


FIG. 7.

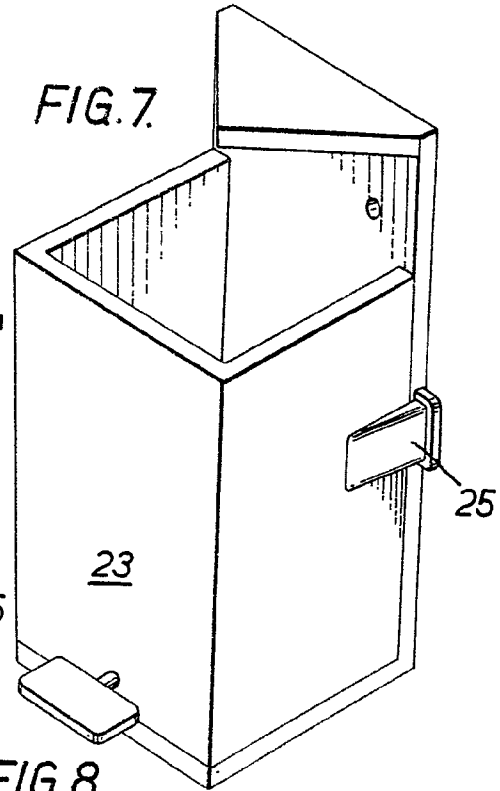


FIG. 8.

